

A NEW SPECIES OF *PROTOSMIA* DUCKE FROM SPAIN  
WITH NOTES ON RELATED SPECIES  
(HYMENOPTERA: MEGACHILIDAE)<sup>1</sup>

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A trap-nesting program in northern Spain undertaken in cooperation with Dr. Enrique Asensio (Instituto Nacional de Investigaciones Agrarias, Valladolid) over the past few years has resulted in numerous nests of megachilids. One of these represents a new species of *Protosmia* Ducke. It is described here in order to make the name available for the description of its nesting biology, and is named in honor of Dr. Asensio, in recognition of his considerable help in this trap-nesting study.

In the following description, abdominal segments are numbered based on the metasoma; expressions in parentheses in the description of the male represent departures among male paratypes from characteristics described for the holotype.

***Protosmia asensioi*, new species**  
(Fig. 1-4)

*Male*. Length, 5 mm (3.5-5 mm); forewing length, 2.5 mm (2-2.5 mm). Black except: eyes, tegula, distal tarsal segments, sterna III, IV brown; tergum VII, sterna V-VIII yellowish; posterior margin of sternum I hyaline. Wings hyaline, venation black except costa brown. Pubescence white except off-white on clypeus, interantennal area, vertex, scutum, scutellum; dense on lower half of face, dorsal pronotal angle, scutellum; distinct apical fasciae laterally on terga I, II, nearly complete on tergum III, faint on tergum IV.

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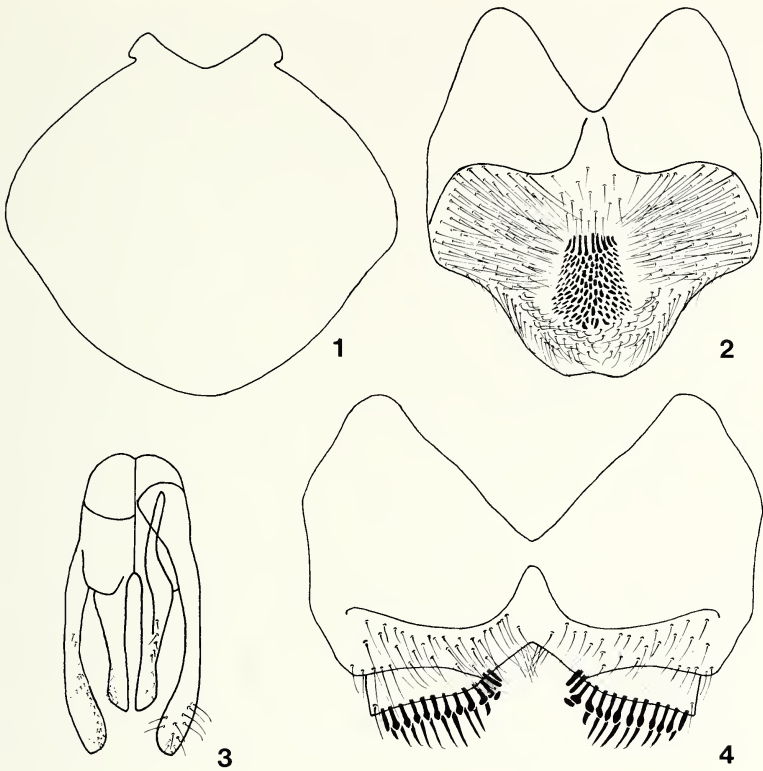
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Head as long as broad; interocellar distance less than ocellocular distance, slightly greater than ocelloccipital distance; length of median flagellomeres one and one-half times width, clypeus slightly convex in profile, margin crenulate; mandible bidentate, upper tooth slightly acute; labrum slightly convex on apical margin, surface impunctate medially, sparsely haired; mouthparts in repose reaching past base of forelegs; scutellum slightly convex; metanotum oblique in profile; basal area of propodeum sloping, with fine longitudinal carinules; forebasitarsus linear, without acute apical angle; foretarsomere II not greatly expanded, longer than wide; tergum VI basolaterally with long, narrow, poorly sclerotized lobe hidden in normal view, apical margin with slight median lobe, lateral corner rounded; tergum VI hidden; sternum I with margin roundly convex (Fig. 1), surface under margin covered with dense, velvety pubescence; sternum II depressed medially, covered with dense, velvety pubescence where normally covered by sternum I, apical margin of sternum II narrowly, shallowly incurved laterally, widely, shallowly incurved medially, margin with long fringe of medially-directed hair; sternum II depressed, laterally bordered by narrow hyaline flange, apical margin narrowly hyaline with long fringe of medially curving hair interior to shallow lateral notch; disk of sternum IV sparsely pubescent, margin broadly convex with sharp lateral notch, submedially with small tuft of hair directed obliquely toward middle; sternum V as in Fig. 2; sternum VI as in Fig. 3; sternum VIII rounded apically; genitalia as in Fig. 4.

*Female.* Length, 4.5–5 mm; forewing length, 2.5–3 mm. Color as in male except: posterior margins of terga II, III, sometimes I, sterna I–V brown; mandible subapically reddish. Pubescence white; dense on lower paraocular area, dorsal pronotal angle, tip of pronotal lobe, posterior half of scutellum, metanotum medially, propodeum dorsolaterally; apical fasciae present on terga I–III, fascia on tergum I thick, broadly interrupted, becoming progressively thinner, less interrupted on terga II, III until thin, complete, sometimes indistinct on tergum IV; scopa white.

Head slightly longer than broad; distances on vertex as in male; length of flagellomere V less than width, flagellomeres VI–IX as long as wide; clypeus slightly convex in lateral view, margin slightly crenulate; mandible slender, not elongate, tridentate, distance between apices of lower and middle teeth slightly less than distance between apices of middle and upper teeth, acetabular carina reaching apical half of mandible, acetabular interspace finely, densely



Figs. 1-4. *Protosmia asensioi*, n. sp. Male. Fig. 1, sternum I. Fig. 2, sternum V. Fig. 3, sternum VI. Fig. 4, genitalia.

punctate, without ridges or shiny areas, basal portion of outer ridge curved dorsally, not reaching acetabular carina; labrum not elongate, not thickened apically, with strong medial tuft arising just basad of apical margin; mouthparts without modified hairs, maxillary palpi four-segmented; gena as wide as eye, ventrally with few long mesally curved hairs; hypostomal carina low, evenly raised throughout; thorax as in male; foretarsomere II as wide as long, asymmetrical, anteroapical angle slightly acute; sternum I without sharp transverse subapical carina.

*Type Material.* Holotype male: "39781C Rearing No.; SPAIN San Miguel de Bernuy, 14 km N Cantalejo, Reared E. Asensio/F.

Parker". 16 males, 18 females, San Miguel de Bernuy, 14 km N Cantalejo; 15 males, 11 females, Cantalejo, 50 km NNE Segovia; 10 males, 12 females, Fuentidueña, 66 km N Segovia; 10 males, 7 females, Aguilafuente, 37 km N Segovia. The holotype will be deposited in the collection of the U.S. National Museum (Washington, DC), paratypes in the collections of the British Museum (London), Museum National d'Histoire Naturelle (Paris), Natur-Museum Senckenberg (Frankfurt), Zoological Institute (Leningrad), E. Asensio, and the Bee Biology and Systematics Laboratory.

*Discussion.* *Protosmia asensioi* belongs to a group of poorly known and rarely collected Palearctic species. They are here included in *Protosmia* because they share with typical *Protosmia* a number of apomorphies including: fine transverse carinules on the pronotal lobe; hind coxa carinate; male tergum VI with lateral flap; male tergum VII and sterna V and VI hidden, not heavily sclerotized; female clypeus not overhanging labrum; female labrum with erect apical tuft of hair. Several of these characters are held in common with *Heriades*, but two, the transverse carinules on the pronotal lobe and the lateral flap on male tergum VI, are unique to *Protosmia*. Further, *Protosmia* lack distinctive characters found in *Heriades* such as the anteriorly carinate metanotum and the carinate basal pododeal zone.

Males of the *asensioi* group are abundantly distinct from typical *Protosmia*. Salient differences include the lack of a genal crease, median flagellomeres longer than broad, margin of tergum VI laterally rounded rather than angled, sternum I without a large ventral projection, and margin of sternum II with a fringe of long hair and without a deep median notch. Females, however, are not so easily differentiated. In fact, the only differences discovered, and these are slight, seem to be smaller body size, distance between mandibular teeth nearly equal, upper mandibular cutting edge a distinct arc ending dorsally in slightly acute tooth, and the absence of narrow impunctate apical margins on terga I and II.

Besides *P. asensioi*, this group includes *P. minutula* (Perez) (= *Osmia cataniae* Strand, new synonymy), previously included in *Hoplitis* (*Micreriades*) (Tkalcu 1977); *P. decipiens* (Benoist), previously placed in *Heriades* (*Eutrypates*) (Popov 1955) and known only in the female; *P. limbata* (Benoist), included by Mavromoustakis (1955) in *Chelostoma* and also known only from the female; and *P. pulex* (Benoist), known only in the male. (These are all new

combinations based on a study of the types by T. Griswold.) Strand (1921) thought it likely that *Osmia cataniae*, based on a single male from Sicily, was a representative of *P. minutula*, but stated he was naming it in the event that it should be found distinct. The type of *O. cataniae* is severely damaged, with the head and most of the abdomen gone, but the first sternum, whose form is distinctive for each species in the group, is still intact. The shape of this segment is the same as found in the male syntypes of *P. minutula*. Further, the type of *O. cataniae* is from Sicily, where one of the syntype males of *P. minutula* was taken (Benoist 1928). On these grounds, it is here placed in synonymy with *P. minutula*.

Males of *P. asensioi* can be readily distinguished from *P. minutula* by the shorter antennal flagellomeres and by the less pronounced median lobe of tergum VI and from *P. pulex* by the dark tegula, the absence of wide translucent apical borders on the terga, and the lack of a shallow medioapical emargination on sternum I. Females of *P. asensioi* can be distinguished from other *Protosmia* by the following combination of characters: the convex clypeus, the structure of the mandibular carinae, the apical position of the labral hair tuft, the absence of modified hairs on the mouthparts, the oblique metanotum with medially dense pubescence, the distribution of apical fasciae on the terga, the absence of translucent margins on the terga, and the lack of a strong transverse carina on sternum I.

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#### SUMMARY

A new species of *Protosmia* Ducke reared from trap-nest stems in Spain, *P. asensioi*, is described. It is compared with *P. minutula* (Perez), (= *Osmia cataniae* Strand, new synonymy), *P. decipiens* (Benoist), *P. limbata* (Benoist), and *P. pulex* (Benoist), all new combinations. This group of closely related species is distinguished from typical *Protosmia*.

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